

[0051] Preferably, in any of the embodiments of the present invention, each of the two running mechanisms is mounted to the body by a respective hanging arm; and each hanging arm has a lower end mounted to the body and an upper end above the cable for mounting the running mechanism, at least one of the hanging arms is movable, with its lower end rotatably mounted (by a hinge, for example) to the body such that the two hanging arms can rotate with respect to each other to be in a close state or an open state, wherein in the close state, the front and rear wheels of the two running mechanisms are mounted and positioned on the cables.

[0052] Therefore, when the electric vehicle is to be mounted to the cable(s) (such as two parallel cables), the two hanging arms open with respect to each other (in this case, their lower ends mounted to the body are maintained at their original positions, while their free upper ends are opened or spaced with respect to each other forming a region with an opening angle therebetween) such that the two respective cables are positioned within the region between the two hanging arms. Then, the two hanging arms close with respect to each other (in this case, the opening angle therebetween is decreased, and preferably the opening angle between the lower portions of the two hanging arms may be decreased to zero, i.e. the lower portions of the two hanging arms are parallel to each other) such that the cables are enclosed in an inner side space surrounded by and between the two hanging arms, and preferably the two hanging arms may be locked with each other by the locking means and thus be held in position in the close state. In the close state, the wheels of the two running mechanisms, mounted at the free upper ends of the hanging arms, respectively, can be mounted in position on the two parallel cables, respectively. It should be noted that the hanging arm is not formed with a straight line shape, but is extended following a predetermined path or curve such that there is a distance between the two hanging arms in the close state at least in the middle portions thereof, thus forming the inner side space surrounded by the two hanging arms in the close state. With such inventive design, it is convenient to place the electric vehicle onto the cables or remove it from the cables. The two hanging arms held or locked together in the close state ensures that the wheels (i.e. the front wheel and/or the rear wheel) are running on the cables within the inner side space surrounded by the two hanging arms in the close state, thus the running of the electric vehicle on the cables can be more stable and more reliable, thereby enabling safer and more effective routing inspection and maintenance for power transmission lines.

[0053] In an embodiment, optionally, a locking means is releasably connected between the two hanging arms and can lock the two hanging arms with respect to each other when they are in the close state.

[0054] It should be noted that the “upper end” and “lower end” of the hanging arm as used herein are not limited to a mathematical or geometrical concept, such an upper end point and a lower end point; instead, they refer to a practical concept, i.e. a portion located at the upper end or the lower end and having a certain size or occupying a certain region. Therefore, in practical use, the “upper end” and “lower end” may have a structure with more specific details. For example, the lower end may have a hinge structure connected with the body, or the upper end (or the free upper end)

may have a mounting structure for mounting the wheel(s) of the electric vehicle, as further described in detail hereinafter.

[0055] In an embodiment, optionally, one of the two hanging arms is fixedly or permanently connected to the body and thus may be referred as “fixed hanging arm”, while the other hanging arm is rotatably connected (by a hinge, for example) to the body and thus may be referred as “movable hanging arm”. Therefore, only one hanging arm (i.e. the movable hanging arm) can be rotated to change the relative state between the two hanging arms, i.e. the close state or the open state (for example, a state where the two hanging arms form an angle therebetween).

[0056] In another embodiment, optionally, the two hanging arms are both rotatably connected (by a hinge, for example) to the body, respectively. That is, the two hanging arm are both movable and each of them can be rotated to change the relative state between the two hanging arms, i.e. the close state or the open state (for example, a state where the two hanging arms form an angle therebetween).

[0057] In an embodiment, optionally, the two hanging arms are symmetrically disposed with respect to a middle plane between the two parallel cables.

[0058] In an embodiment, optionally, the two running mechanisms are mounted to the body by a hanging mechanism comprising the two hanging arms. Optionally, one of the hanging arms is fixedly connected to the body and the other hanging arm is rotatably connected (by a hinge, for example) to the body. In an embodiment, the two hanging arms may have their lower portions, which are connected to the body, respectively, extending in a vertical direction and opposing to each other. More preferably, the locking means may comprise a screw rod passing through the lower portions of the two hanging arms and a handwheel connected to an end of the screw rod, wherein the handwheel is disposed on a side of the fixed hanging arm which is fixedly connected to the body.

[0059] Therefore, the screw rod can be moved by rotation of the handwheel, thus enabling adjustment of the relative positions (or angles) between the two hanging arms as desired.

[0060] In an embodiment, optionally, the two hanging arms may have connection holes. When the two hanging arms are closed (i.e. in the close state), their connection holes are aligned with each other. The screw rod can pass through the aligned connection holes of the two hanging arms (more preferably also passing through a connection hole of the body where the hanging seat is hanged), and may be screwed by a nut (preferably a pair of nuts, for example).

[0061] In an embodiment, optionally, the hanging mechanism may comprise a lock. When the two hanging arms are closed, they can be locked together by the lock to prevent them from accidentally opening due to the influence of vibration or other external forces.

[0062] Preferably, in any of the embodiments of the present invention, the upper end of one of the hanging arms bends towards the other hanging arm and then bends back downwards to form an “n” shaped structure for enclosing the front wheel or rear wheel, wherein the “n” shaped structure has an opening which is opened downwards; and the hanging arm is provided with a closing structure at the opening of the “n” shaped structure for at least partially closing the opening.

[0063] Therefore, when the electric vehicle is running along the cable by its wheels (the front and rear wheels, for